

United Clay Products Company:
New York Avenue Brickyard
2801 New York Avenue NE
Washington, DC

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
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HISTORIC AMERICAN ENGINEERING RECORD

DISTRICT OF COLUMBIA

UNITED CLAY PRODUCTS COMPANY: NEW YORK AVENUE BRICKYARD

DC-2

Location: 2801 New York Avenue, NE
Washington DC

Date of Construction: 1909-1939

Present owner: U.S. Department of Agriculture

Significance: These beehive brick kilns are representative of a type common in the industry. They are the only such survivors from the over one hundred brickyards which operated in the Washington area in the early part of this century.

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Transmitted By: Gary R. Arabak, 1983

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Washington's Brickmaking Industry:

1900 - present

At the turn of the century, there were approximately one hundred brickyards operating in Washington, D.C.¹ The majority of these yards were small, family-run concerns working out of backyards and empty lots. A sizeable number, however, were larger concerns, many of which excavated clay from the Anacostia Deposit located along that river. The commissions received by these plants supplied brick for many of the major structures, thousands of homes, and "miles of sidewalk" constructed within the city.²

As the Capital City expanded and developed, many of these yards were closed. Exhausted clay deposits, real estate speculation and the hard economies of efficient production forced many plants to shut down or move their premises to the Maryland and Virginia suburbs.³

It was during the first thirty years of this century that the New York Avenue brickworks came into prominent operation. The Hudson Brick and Supply Company had been operating rectangular kilns on this site for many years. At some point between 1927 and 1931, operations were expanded considerably by the reconstruction and expansion of the brickworks. Whether this was done by the Hudson Brick and Supply Company or

the United Brick Corporation, which assumed title in 1930, could not be determined from available records or oral history efforts. In either case, nine of the beehive kilns and the factory/dryer complex were in full operation by 1931 at the latest.

The last year of peak production for the brick industry has been set at 1925.⁴ Following that date, the increased acceptance and use of ferro-concrete in construction caused many smaller plants to close.⁵ When coupled with major consolidation efforts within the industry,⁶ this left only a handful of brickyards operating in the Capital area.

Production levels at the United Brick Corporation facility were maintained, and indeed were increased, during this period. Local competition was provided by two firms: the West Brothers Brick Company (now defunct) which operated beehive kilns on the present site of the Pentagon, and the Washington Brick Company which still operates a tunnel kiln on Muirkirk Road. It should be noted that the Washington Brick Company has been the only operative facility within the Capital since the closure of the New York Avenue yard in 1972.

Following World War II, construction contracts increased. The use of oil fuel and forklift equipment allowed productivity levels of 140,000 common bricks daily.⁷ Soft-mud brick production could reach 7,500 bricks when large contracts demanded.⁸ Employees numbered 75-100, down from

the 125 required during the coal-fuel years. It was traditional during the last thirty years, when E. Taylor Chewning ran the family business, for employees to be shifted to custodial positions, rather than being laid off, when manpower requirements diminished.⁹

Although brick production was very high, almost all commissions received were for local use. According to Chewning, it was rare that bricks were sent as far as Baltimore. The majority of the brick manufactured -- enough per day for ten average size houses -- went towards major housing projects. The Broadmoor Apartments on Connecticut Avenue and Fairlington Villages, just outside the District, are typical examples. Colonial Village in Arlington, Va., constructed in 1935 as the first F.H.A. housing project, was built with this brick. During the 1960's and 70's United Brick Corporation supplied red brick for the Court of Claims and New Executive Office Buildings on Lafayette Square. Brown, sand-finished brick was supplied to the National Cathedral.

The current status of the brickmaking industry is notable. There are approximately 400 plants within the country devoted exclusively to the manufacture of brick. Sixty percent of these operate tunnel kilns while a larger minority own shuttle kilns (a modification of tunnel kilns) and rectangular down-draft kilns. Only a small -- and unknown -- percentage is devoted to the beehive and scove varieties. A very

nominal percentage may also be assigned to a new variety of steel-jacketed, beehive kilns.¹⁰ These new kilns, totally encased in steel, operated with jet burners and have very thin firebrick walls.

The primary factor in the disappearance of so many beehive structures is economics. Older kilns are often too small for the efficient use of forklifts, necessitating the back-breaking labor of handstacking. This is not only expensive but very difficult to find. Also, periodic kilns can only be fired once or twice a month if the proper firing and cooling periods are observed. Tunnel kilns, on the other hand, may be fired continuously because the bricks move on conveyors through various heating and cooling chambers within the kiln.

New York Avenue Brickworks:

General History

Until 1909, the New York Avenue brickyard (synonymous with the "site") was held in several ownerships as residential and agricultural land. On June 22, 1909, the National Capital Clay Products Company filed a building permit application which suggests the earliest development of the site as a brickmaking concern. On the 24th of June, permit #5035 was granted allowing the construction of "1 Factory and battery of kilns."

The kilns intended for construction at this point were not the round, beehive kilns presently standing. Rather, these were rectangular structures which, according to a building inspector's report, were erected sometime after April, 1910. The manufacturing plant, however, was standing at this time.

During the next decade, title was transferred to the District Tile and Brick Company. The 1919 edition of the Baist Real Estate Atlas for Washington, D.C. details two rectangular structures -- one brick and one frame -- which comprised the entire brickmaking operation on the company's 30.33 acres of land.

In 1923, title to the property was assumed by the Hudson Brick and Supply Company. The property remained at 30.33 acres and the 1924 and 1927 editions of the Baist Atlas illustrates the same complement of

brickmaking facilities as formerly shown.

In 1930, title to the brickyard was transferred from the Hudson Brick and Supply Company to the United Brick Corporation, later to become a subsidiary of United Clay Products Company. It was as a result of this transaction that tremendous improvements were made to the site. Nine beehive kilns and one large factory/dryer complex were constructed. Building Permit #141349, dated April 6, 1931, called for the construction of a 1½ story dryer with thirteen tunnels. An inspection record made by the District's Tax Assessor's Office in December of that year confirms the construction of this facility and records the existence of an office and battery of kilns as well. The 1931 edition of the Baist Atlas depicts an office, two sheds, nine beehive kilns and the factory/dryer complex.

It should be noted that there is no permit on record authorizing or dating the construction of the beehive kilns. A 1927 Baist shows no sign of them, yet nine are recorded by 1931. Oral history efforts among former workmen and their families have only ascertained that they are about fifty years old.

It was during 1939 that the brickyard operations underwent a major transition from coal to oil fuel. This is significant in dating some of the kilns because only two of the remaining twelve were designed for oil. There are no remnants of arched fireboxes around the kilns,

evident on all the others, which had been used for coal stoking. Only the coal-fueled kilns exhibit these, which were infilled with brick at the time of conversion. This confirms that a minimum of ten kilns existed prior to 1939 and that two have been constructed since.

During 1941-42, two additional buildings were constructed on the site. A locker/boiler facility (permit #220371) and an oil house were built to the south of the factory/dryer complex. Both buildings were strictly utilitarian in function yet enhanced by the unusual use of individually molded, soft-mud bricks. These have rendered a much older appearance to the two structures than their dates admit.

The next major alteration to the site was the construction of the manufacturing facility due west of the kilns. Until recently, this served a storage function. Permit #260502, filed on May 6, 1943, authorized the construction of a one-story, brick structure. Under a defense contract during the War, this building was used for the production, packing and stenciling of acetylene cylinders.

Following World War II, the United Brick Corporation contracted with a private trucking firm which hauled shipments of the company's bricks. To the west of Hickey Creek, on the periphery of the brickyard, three structures were provided rent free for the exclusive use of the trucking firm. The two-room, frame office, cinderblock repair shop and frame garage still stand, despite rapid deterioration.

In 1954 a fire of suspect origin caused considerable damage to the factory/dryer complex. In particular, the roofs of the two connected structures were severely burned, necessitating a great deal of patching and rebuilding. Charred beams within the factory building still attest to the conflagration. In addition, the plant's electrical system burned out, causing major damage to the production machinery.

Thereafter, the status of the brick company changed little until 1970 when United Brick Corporation was dissolved. United Clay Products Company assumed title and continued operations until the company finally closed its doors in January, 1972. In 1973 United Clay Products liquidated and on March 20, 1974, assets were transferred to United Partners, Limited. On August 12, 1976, possession of the brickyard and its total acreage was transferred to the United States of America and its Assigns, in care of the United States Department of Agriculture.

The current status of the yard and the brickmaking facilities is uncertain. The development concepts put forth by the U.S.D.A., in its proposals to expand the National Arboretum, include plans to alter the brickyard area through the construction of exhibit, research, education and other public facilities.

Physical Plant

It is necessary at this point to view in greater depth the construction and function of various buildings and structures within the confines of the brickyard. This analysis will cover only those buildings, still in recognizable condition, which had an express function pertinent to the manufacture of bricks. Small, removed sheds will not be discussed, nor will the three buildings across Hickey Creek which were utilized exclusively by the trucking firm mentioned earlier.

Factory Building: c. 1927-31

This manufacturing building is the largest on the site and occupies approximately 21,000 square feet. Constructed almost entirely of brick with a sheet metal roof and earthen floor, this 1½ story structure exhibits several building stages and minor additions. At one time the factory housed all of the machinery necessary to process raw clay into brick forms. Unfortunately, this equipment no longer remains.

The factory is a spacious, well-lit structure quite plain in appearance. There are four large operating areas which form a vague T-shape. The room closest to New York Avenue is very spacious and was used as a tool and machinery shop. The middle room -- to the south -- housed the brickmaking machinery and transfer cars. A large wing to the east served various related functions and had several small rooms adjoining it. These may have been used for storage or repairs.

The southermost room was the receiving area for the raw clay and housed some machinery for clay processing.

As stated, these rooms no longer contain any equipment related to the brickmaking operation. During the last four years, the machinery, depending upon its condition, was either sold to a firm in Johannesburg, South Africa or scrapped. The structure is essentially a brick shell, the function of which is told only by some transfer car rails and the shed for the dinkey train.

Function:

At its southern end, the factory is built on two levels. The upper level served as a terminal point for a three-car "dinkey train" which brought weathered clay from storage piles south of the brickyard. At this terminus, the cars would be emptied, dumping the clay through a hole in the floor into a dry, primary pan. In this pan, the large chunks of clay were chopped by blades, then sent through a system of pulverizing rollers.

Once the clay was reduced, it was "tempered" by the addition of water and sand. This took place in a Fate, Root, Heath Co. pugmill. The clay was given an even, plastic consistency which, when ready, was conveyed to a stiff-mud extruding machine.

This machine, also designed by Fate, Root, Heath Co., operated horizontally. The clay would be forced into the machine where a vacuum pressure of 32 pounds per square inch was applied to remove large air voids. A screw-type auger would then force the clay through a die and a long, brick-shaped column of stiff clay would emerge. By changing the die in this machine, various surfaces could be applied to the bricks.

As the clay column was extruded, a wire cutting device (J. C. Steele Co.) sliced the clay into individual bricks. The cutter could be changed to produce various sizes. These brick forms were then transferred by hand to a transfer car and wheeled to the dryers.

Other equipment was also used in the manufacture of soft-mud bricks. In this process the clay would be forced into rectangular wooden molds which had been sanded to facilitate removal. Because these bricks were never pressurized, air bubbles were common. They became a special-order variety, requested for their unfinished, "colonial" appearance.

Drying Shed; c. 1927-31

Attached to the western end of the factory building is the drying shed. This large, mixed-bond, brick and frame structure contains 38 drying tunnels each approximately 100 feet in length. Also housed along the southern facade of the shed are several small office and

storage rooms. Numerous alterations to the drying shed are evidenced by the breaks in bonding and changes in brick type.

The majority of the space within the shed is occupied by the drying tunnels. At each end of the tunnels, however, there is a network of rails for the transfer cars.

Most of the tunnels are separated from one another by brick walls. Tunnels #17 and 18, #19 and 20 and #21-25 do not have these partitions and were used as double dryers. The floor of the tunnels is perforated allowing waste heat from the kilns to circulate among the stacked bricks. Metal doors which once closed off these tunnels are no longer on the site.

Function:

The drying tunnels were an integral part of the brickmaking operation. Following the cutting process, the bricks would be wheeled to the drying shed where they were transferred to smaller drying carts. These carts would be wheeled into the dryers, thirteen per tunnel, which were then sealed. With waste heat from the kilns, the dryers would reach a moderate temperature of 150-180 degrees. After 48 hours the bricks would be baked, not fired, to an adobe-like strength. The purpose of this step was to eliminate moisture from the bricks before exposing them to the intense heat of the kilns. Moisture would have caused the bricks to warp, crack or pock.

At the western end of the tunnels, the bricks were transferred once again to larger cars, then wheeled to the appropriate kiln.

Beehive Kilns: c. 1927-31

Certainly the most visually-striking structures on the site are the twelve beehive, down-draft kilns grouped in the center of the brickyard. Constructed of brick, and accented by circular steel bands, nine of these kilns were constructed prior to 1931. Three others were erected later one prior to, and two after the coal-oil conversion of 1939.

All twelve kilns exhibit the same basic method of construction. The circular walls are made of common, extruded brick, lined on the interior with heat resistant firebrick (imported from Mt. Savage Firebrick Co. in Maryland). The walls of ten of the kilns are characterized by twelve arched fireboxes. These fireboxes have been infilled signifying a change in fuel types. The two kilns expressly designed for oil heat do not exhibit these arches.

The kiln crowns are generally in fair condition. On most, the outer tar covering has disappeared revealing a patchwork of earthen-toned brick. Most of the crowns have been overgrown by weeds and small bushes; only two of the newer kilns are devoid of this natural covering.

The kiln interiors vary tremendously. On the attached chart, their conditioned may be seen in comparative form. In some the fireboxes are deteriorating or have been removed. These once held coal fires and acted as protective screens between the stacked bricks and the open flames.

As stated, the kilns were lined with firebrick. Dependent upon the age of the kiln, these walls varied in thickness; newer kilns exhibit thinner walls. In several kilns the walls have deteriorated so significantly that the firebrick lining is barely secure. In most, however, the walls are in fair condition.

The interior of each crown generally reflects the same condition as the walls. The fact that the crowns were never in direct contact with the flames, however, has spared them from major deterioration.

The flooring within the kilns reveals much about the operation of the structure. Also of firebrick, the floors were laid in diagonal patterns over a series of flues. These flues drew the heat down through the set bricks and out a main flue to a nearby stack. The firebricks are generally rectangular in form with a portion of one side cut away to permit the passage of heat through the floor. In approximately half the kilns these floors are in good or fair condition and provide an unusual surface play of solids and voids.

The majority of the kilns have been rebuilt or patched beneath their crowns. This was a traditional maintenance problem encountered in brickmaking due to the stress placed on the walls by the extreme temperatures attained in firing. In weighing the historical significance of the kilns this factor should not be considered as detrimental.

Adjoining the twelve kilns are eight brick exhaust stacks. Six are the older rectangular variety, (with exterior steel reinforced). Each has suffered some deterioration and patching efforts are obvious. The two modern, round stacks are stepped at the bottom and reinforced, at intervals, by circular steel bands. Each stack appears to be between 40' and 50' tall. This height was required to create adequate suction in the down-draft kilns.

Function:

Firing the bricks in the kilns was the last step in the operation. Having been processed in the dryers to an adobe-like hardness, the bricks were conveyed on transfer cars to the kilns. Prior to the purchase of forklift equipment in the 1950's, these bricks were manually taken off the cars and hand-stacked in the kilns by a team of brick setters. Care was taken in stacking the bricks to allow air channels for an even firing. The kilns were then closed off by filling the doorways with "salmon" or unbaked brick.

Although a normal firing only lasted four to five days, the setting and cooling periods extended the process to a week and one half. When coal was in use, a fire-gang of twelve men (per kiln) stood round-the-clock watches shovelling coal and regulating the fire. After the conversion to oil, that team was reduced to one man who checked the oil meters.

During the firing, temperatures within the kiln reached up to 2,000 degrees Fahrenheit. In addition to providing a screen between the flame and the bricks, the twelve firebox walls channeled heat towards the top of the kiln. By placing the flues beneath the flooring and connecting them to a nearby stack, heat would be drawn down through the set bricks. Excess heat would be channeled beneath the ground through two tunnels: one to the stack and one to the drying shed which utilized a waste-heat system.

Upon completion of firing, the kiln would be cooled for two to three days. Following this, the temporary doors to the kilns were dismantled and the bricks transferred to the storage lot.

Locker/Boiler: c. 1941-42

Except for the twelve beehive kilns, the most aesthetically appealing structure on the site is the locker/boiler facility. Constructed of soft-mud brick and laid in an uninterrupted Flemish bond, the structure appears much older than its date admits.

A central pavilion (1½ stories) features a white wooden cupola capped with a weathered copper finial. Below this, on both eastern and western facades, are pedimented gables adorned at the eave and cornice lines by three courses of stretcher-header-stretcher corbelled bond. Semicircular louvered windows enhance the pediments. Below each pediment is a circular window. On the eastern facade this is open; on the opposite facade an exhaust pipe connects the boiler pavilion with a nearby stack. This central boiler area has a door and window on each facade.

The northern wing of the building, housing lockers, showers and toilets, has five windows on the western facade and four windows and two doors on the eastern facade. Each window has two vertical sections, eight lights each, stabilized by metal jambs and lintels. Hand-cut extruded brick is used over all windows and doors, achieving a contrasting effect against the soft-mud walls.

The southern bay of the building contains storage shelves and cabinets. The only entrance to this section is via a metal door on the west facade.

Oil House: c. 1941-42

An oil house was constructed at the same time as the locker/boiler. Also of soft-mud brick laid in Flemish bond, the small building holds the same charm as does the locker/boiler. The gable ends are pedimented and a three course corbelling (stretcher-header-stretcher) enhances

the eave and cornice lines. Air vents in each gable are patterned into the brickwork. There are three windows, all of the same type employed in the locker/boiler. One door on the west facade opens into a simple tiled room which, except for some oil pans and hookups, is devoid of equipment.

Boiler Room: date unknown

The dating on this plain structure was not known from available building permits. It is a simple, one-story, common-bond brick structure with a wooden shed roof. There are two 3/3 rotating, horizontal metal windows and one metal double door. The only interior furnishings are hookups for a missing boiler.

Guard Dog Quarters: date unknown

According to oral history efforts, this small, one-story brick structure, built "sometime before 1937", was used to cook for, and groom, the yard's guard dogs. It is totally lacking in ornamentation or detail. The sparse interior contains some storage areas and a large laundry basin.

Storage Building: 1943

Situated on the east bank of Hickey Creek, this elongated one-story brick structure served a storage function during World War II. One may guess that the building was hastily constructed given its poorly mortared joints and lack of ornamentation.

The building is generally symmetrical with two end wings placed perpendicular to the building's north/south axis. A concrete loading ramp abuts the southern wing where garage doors open onto a large storage area. Several spacious rooms extend the length of the building which are characterized only by wooden shelving. Protective bars have been added to the windows and a mundane, asphalt roof covers the structure. Only at the southern end is the simple gable roof relieved by an extension over the loading ramp.

As stated above, the function served by this structure was peripheral to the brickmaking process. Acetylene cylinders were produced, packed and stenciled by the company under a government contract.

Office: predates 1931

Within a short distance from the New York Avenue entrance, and just west of Kiln #10, is a small, one-story, common-bond brick structure which served an administrative function during the yard's operation. Although no definite permit has been found for this building, it is shown on the 1927 Baist plat. It is presumed by both the former owner, E. Taylor Chewning, and one of his long-term employees, Henry Hunter, to be one of the oldest structures on the yard.

The building is asymmetrical in form with two uneven bays flanking a brick gabled portico. The two columns at the entrance were designed with rounded, hard-fired brick. Glazed quoins at the corners of the

building and around the windows and doors render a subtle refinement to the building. A cross-like design in the portico gable was patterned in the bonding.

The roof is made of slate shingles which enliven the dark brick walls with their soft tones of green and gray. The building's ten double sash windows feature 2/2 lights encased in wooden arched jambs.

The building's interior is extremely plain, devoid of furnishings save some storage cabinets.

General Environment:

Attention must also be given to the environment in which these buildings exist. With the exception of a few minor sheds and shacks at some distance from the actual brickworks, the remaining acreage included in the New York Avenue parcel is undeveloped. A polluted creek runs a north/south course through the property separating the brickwork structures from some hilly land to the west. The southeastern acres of the subject property are strewn with trash, deteriorating sheds and clay piles. This area was used in transporting the raw clay from the Anacostia Deposit, storing and weathering the clay in mounds, and then transporting it to the factory on the dinkey train.

The southern and eastern boundaries of the 33 acre site adjoin the National Arboretum, a National Register property. The western frontage abuts a commercially developed parcel, and the northern boundary fronts a highly developed commercial and industrial roadway.

FOOTNOTES

- ¹ E. Taylor Chewing, President, United Brick Corporation, telephone interview, August 19, 1976.
- ² "The Passing of Washington's Brick Kilns," The Sunday Star, Washington, D.C. September 17, 1905, p. 6.
- ³ Ibid.
- ⁴ Miriam West, Productivity and Employment in Selective Industries: Brick and Tile, Works Progress Administration, Report No. N-2, Philadelphia, February 1939, p. 14.
- ⁵ Christopher S. Dergane, "J.H. Wilkerson and Sons Brick Works," Historic American Engineering Record Report DE-5, HAER, Washington, D.C.
- ⁶ Ibid.
- ⁷ Walter Scheffel, Maintenance Manager, United Brick Corporation, interview, August 13, 1976.
- ⁸ Henry Hunter, former employee, United Brick Corporation, interview, August 13, 1976.
- ⁹ Op. Cit., Chewing.
- ¹⁰ Richard Otterson, Brick Institute of America, telephone interview, August 17, 1976. All figures in this paragraph are those of Mr. Otterson.

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